

Application No. 10/609,005  
Response dated February 14, 2006  
Reply to Office action of December 12, 2005

Page 2 of 16

**Amendments to the Claims**

This listing of claims will replace all prior versions, and listings, of claims in the application:

**Listing of Claims:**

1-35. (canceled)

36-51. (canceled)

52. (canceled)

53. (currently amended) The process of claim ~~52~~ 62, wherein controlling the temperature of the gaseous medium includes providing a first fluid at least partially surrounding the gaseous medium.

54. (previously presented) The process of claim 53, wherein controlling the temperature of the gaseous medium includes dispersing a second fluid within the first fluid.

55. (previously presented) The process of claim 54, wherein dispersing the second fluid within the first fluid includes dispersing the second fluid through a plurality of holes in a dispersal tube.

Application No. 10/609,005  
Response dated February 14, 2006  
Reply to Office action of December 12, 2005

Page 3 of 16

56. (previously presented) The process of claim 54 62, wherein the first fluid has a first temperature, and the second fluid has a second temperature.

57. (canceled)

58. (canceled)

59. (canceled)

60. (currently amended) The process of claim 58 62, wherein receiving the metal sphere and a volume of the liquid in a pipe includes allowing the metal sphere to settle in a bend in the pipe.

61. (canceled)

62. (currently amended) A process for fabricating metal spheres, comprising:  
generating a droplet from a molten metal mass;  
buffering the droplet by diminishing internal kinetic energy of the droplet without  
solidifying the droplet; and  
cooling the buffered droplet to the extent that the droplet solidifies into a metal  
sphere, wherein cooling the droplet includes

Application No. 10/609,005  
Response dated February 14, 2006  
Reply to Office action of December 12, 2005

Page 4 of 16

enclosing the droplet in a gaseous medium; and

controlling the temperature of the gaseous medium;

collecting the metal sphere, wherein collecting the metal sphere includes

receiving the metal sphere in a reservoir that holds a liquid;

receiving the metal sphere and a volume of the liquid in a pipe; and

delivering the metal sphere to a collection basket, wherein delivering the

metal sphere to the collection basket includes

pumping the metal sphere and the volume of the liquid to a level

that is higher than a level of the liquid in the reservoir, and

depositing the metal sphere and the volume of the liquid into the

collection basket;

~~The process of claim 61,~~ wherein collecting the metal sphere further includes  
disposing the collection basket in a holding tank.

63. (previously presented) The process of claim 62, wherein collecting the metal  
sphere further includes

removing the collection basket from the holding tank, and

allowing the volume of the liquid to pass through openings in the collection  
basket that are smaller than the metal sphere.

Application No. 10/609,005  
Response dated February 14, 2006  
Reply to Office action of December 12, 2005

Page 5 of 16

64. (previously presented) The process of claim 62, wherein collecting the metal sphere further includes returning the liquid passing through the openings in the collection basket to the reservoir.

65. (currently amended) The process of claim ~~57~~ 64, wherein returning the liquid to the reservoir includes providing a return channel in fluid communication between the holding tank and the reservoir.

66. (currently amended) The process of claim ~~52~~ 62, wherein buffering the droplet includes  
enclosing the droplet in a buffering gaseous medium that is separate from the gaseous medium in which the cooling occurs, and  
controlling the temperature of the buffering gaseous medium.

67. (canceled)

68. (canceled)

69. (canceled)

70. (currently amended) A process for fabricating metal spheres, comprising:  
generating a droplet from a molten metal mass;

Application No. 10/609,005  
Response dated February 14, 2006  
Reply to Office action of December 12, 2005

Page 6 of 16

buffering the droplet by diminishing internal kinetic energy of the droplet without solidifying the droplet, in a first medium at a first temperature;

cooling the buffered droplet to the extent that the droplet solidifies into a metal sphere, in a second medium at a second temperature;

blowing a fluid in a space between the first medium and the second medium to provide temperature separation between the first medium and the second medium; and

collecting the metal sphere, wherein collecting the metal sphere includes

receiving the metal sphere in a reservoir that holds a liquid;

passing the metal sphere and a volume of the liquid to a pipe; and

delivering the metal sphere from the pipe to a collection basket;

~~The process of claim 69~~, wherein passing the metal sphere and a volume of the liquid to a pipe includes allowing the metal sphere to slide down lower sides of the reservoir that slope toward an opening in the pipe.

71. (currently amended) The process of claim ~~69~~ 70, wherein passing the metal sphere and a volume of the liquid to a pipe includes allowing the metal sphere to settle in a bend in the pipe.

72. (canceled)

73. (previously presented) A process for fabricating metal spheres, comprising:  
generating a droplet from a molten metal mass;

Application No. 10/609,005  
Response dated February 14, 2006  
Reply to Office action of December 12, 2005

Page 7 of 16

buffering the droplet by diminishing internal kinetic energy of the droplet without solidifying the droplet, in a first medium at a first temperature;

cooling the buffered droplet to the extent that the droplet solidifies into a metal sphere, in a second medium at a second temperature;

blowing a fluid in a space between the first medium and the second medium to provide temperature separation between the first medium and the second medium; and

collecting the metal sphere, wherein collecting the metal sphere includes

receiving the metal sphere in a reservoir that holds a liquid,

passing the metal sphere and a volume of the liquid to a pipe, and

delivering the metal sphere from the pipe to a collection basket, wherein

delivering the metal sphere from the pipe to a collection basket includes

pumping the metal sphere and the volume of the liquid to a level

that is higher than a level of the liquid in the reservoir, and

depositing the metal sphere and the volume of the liquid into the collection basket, and

~~The process of claim 72, wherein collecting the metal sphere further~~  
includes disposing the collection basket in a holding tank.

74. (previously presented) The process of claim 73, wherein collecting the metal sphere further includes removing the collection basket from the holding tank, and allowing the volume of the liquid to pass through openings in the collection basket that are smaller than the metal sphere.

Application No. 10/609,005  
Response dated February 14, 2006  
Reply to Office action of December 12, 2005

Page 8 of 16

75. (previously presented) The process of claim 74, wherein collecting the metal sphere further includes returning the liquid passing through the openings in the collection basket to the reservoir.

76. (previously presented) The process of claim 75, wherein returning the liquid to the reservoir includes providing a return channel in fluid communication between the holding tank and the reservoir.

77. (currently amended) The process of claim ~~67~~ 70, wherein the first medium is a gaseous medium, and buffering the droplet includes controlling the first temperature.

78-81. (canceled)

82-84. (canceled)

85-90. (canceled)

91. (canceled)

Application No. 10/609,005  
Response dated February 14, 2006  
Reply to Office action of December 12, 2005

Page 9 of 16

92. (currently amended) The process of claim 94 98, wherein buffering the droplet includes controlling the temperature of the gas.

93. (canceled)

94. (canceled)

95. (currently amended) The process of claim 94 98, wherein receiving the metal sphere and a volume of the liquid from the reservoir in a pipe includes allowing the metal sphere to slide down lower sides of the reservoir that slope toward an opening in the pipe.

96. (currently amended) The process of claim 94 98, wherein receiving the metal sphere and a volume of the liquid from the reservoir in a pipe includes allowing the metal sphere to settle in a bend in the pipe.

97. (canceled)

98. (currently amended) A process for fabricating metal spheres, comprising:  
generating a droplet from a molten metal mass;  
ejecting the droplet at a generally upward angle, such that the droplet follows a  
trajectory that proceeds upward until the droplet reaches a maximum height before  
descending;



Application No. 10/609,005  
Response dated February 14, 2006  
Reply to Office action of December 12, 2005

Page 10 of 16

buffering the droplet by providing a generally upward flow of gas that slows a rate of descent of the droplet as the droplet is descending and diminishes internal kinetic energy of the droplet without solidifying the droplet;

cooling the buffered droplet to an extent that the droplet solidifies into a metal sphere; and

collecting the metal sphere, wherein collecting the metal sphere includes

allowing the metal sphere to fall into a reservoir that holds a liquid,

receiving the metal sphere and a volume of the liquid from the reservoir in a pipe connected to a bottom end of the reservoir,

delivering the metal sphere to a collection basket, wherein delivering the metal sphere to the collection basket includes

pumping the metal sphere and the volume of the liquid to a collection level that is higher than a level of the liquid in the reservoir, and depositing the metal sphere and the volume of the liquid into the collection basket, and

~~The process of claim 97, wherein collecting the metal sphere includes~~

~~disposing the collection basket in a holding tank; and~~

~~allowing the volume of the liquid to pass through openings in the collection basket that are smaller than the metal sphere.~~

Application No. 10/609,005  
Response dated February 14, 2006  
Reply to Office action of December 12, 2005

Page 11 of 16

99. (previously presented) The process of claim 98, wherein collecting the metal sphere further includes returning the liquid passing through the openings in the collection basket to the reservoir.

100. (previously presented) The process of claim 99, wherein collecting the metal sphere further includes providing a return channel in fluid communication between the holding tank and the reservoir.

101. (previously presented) The process of claim 98, wherein collecting the metal sphere further includes removing the collection basket from the holding tank.

102. (new) The process of claim 70, wherein delivering the metal sphere from the pipe to a collection basket includes

pumping the metal sphere and the volume of the liquid to a level that is higher than a level of the liquid in the reservoir, and

depositing the metal sphere and the volume of the liquid into the collection basket.

103. (new) The process of claim 102, wherein collecting the metal sphere further includes disposing the collection basket in a holding tank.

Application No. 10/609,005  
Response dated February 14, 2006  
Reply to Office action of December 12, 2005

Page 12 of 16

104. (new) The process of claim 103, wherein collecting the metal sphere further includes removing the collection basket from the holding tank, and  
allowing the volume of the liquid to pass through openings in the collection basket that are smaller than the metal sphere.

105. (new) The process of claim 104, wherein collecting the metal sphere further includes returning the liquid passing through the openings in the collection basket to the reservoir.

106. (new) The process of claim 105, wherein returning the liquid to the reservoir includes providing a return channel in fluid communication between the holding tank and the reservoir.

107. (new) The process of claim 73, wherein passing the metal sphere and a volume of the liquid to a pipe includes allowing the metal sphere to slide down lower sides of the reservoir that slope toward an opening in the pipe.

108. (new) The process of claim 73, wherein passing the metal sphere and a volume of the liquid to a pipe includes allowing the metal sphere to settle in a bend in the pipe.

109. (new) The process of claim 73, wherein

Application No. 10/609,005  
Response dated February 14, 2006  
Reply to Office action of December 12, 2005

Page 13 of 16

the first medium is a gaseous medium, and

buffering the droplet includes controlling the first temperature.